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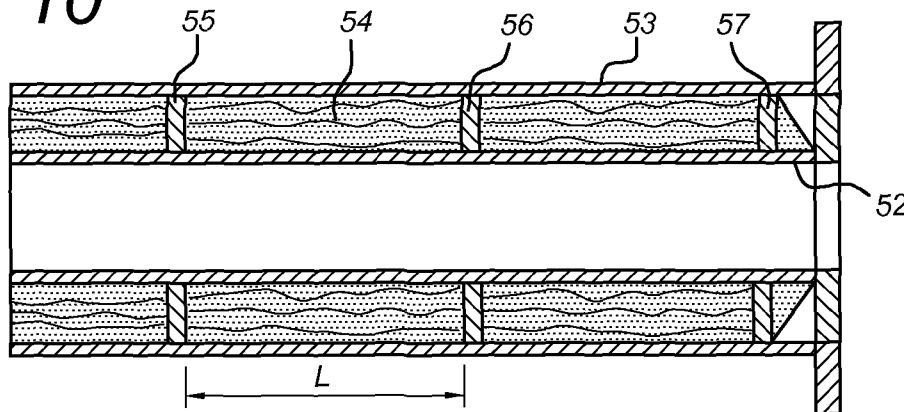
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- Published:**
 - with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) **Date of publication of the international search report:**
4 September 2008

(54) **Title:** CRYOGENIC TRANSFER HOSE HAVING A FIBROUS INSULATING LAYER AND METHOD OF CONSTRUCTING SUCH A TRANSFER HOSE

Fig 10



(57) **Abstract:** Cryogenic transfer hose for hydrocarbons comprising an inner hose, an outer hose arranged around the inner hose in a concentric manner and a spacer member bridging an annular gap between the inner and outer hoses, a fibrous insulation material forming a three dimensional matrix of fibres being comprised in the annular gap, characterised in that the outer hose comprises an elastomeric and/or a plastic material, the fibrous material being contiguous overall best a part of the length of the hoses with the inner and outer hose and forming a spacer member.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2007/063524

A. CLASSIFICATION OF SUBJECT MATTER

INV. F16L59/153

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
F16L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 190 734 A (HALL THERMOTANK INTERNAT LTD F [GB]) 6 May 1970 (1970-05-06)	1-6, 8-10, 12-16, 18, 19, 23
Y	figure 1	7, 11, 17
X	US 4 581 804 A (MCLAUGHLIN HUGH T [US]) 15 April 1986 (1986-04-15)	1-14, 16, 18, 19, 23
Y	column 3, lines 35-40; claim 3	7, 11, 15, 17
Y	US 3 490 496 A (STEARNS THORNTON) 20 January 1970 (1970-01-20) figure 7	15

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X1" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "S" document member of the same patent family

Date of the actual completion of the international search

3 Ouly 2008

Date of mailing of the international search report

18/07/2008

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2007/063524

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/003264 A1 (ROCK MOSHE [US] ET AL) 2 January 2003 (2003-01-02) cited in the application abstract -----	7
X A	WO 2005/058573 A (SOCOTHERM S P A [IT]; BERTI ENRICO [IT]; VARAGNOLO ROBERTO [IT]; GUIDE) 30 June 2005 (2005-06-30) claim 7 -----	18-20 21,22,24
X A	US 2 824 364 A (BOVENKERK HAROLD P) 25 February 1958 (1958-02-25) column 2, paragraph 3; figure 4 -----	18,21,22 19,20,24
X A	US 3 595 275 A (STEANS THORNTON ET AL) 27 July 1971 (1971-07-27) figure 6a -----	18,19,21 20,22,24
A	US 3 809 128 A (TATEISI T ET AL) 7 May 1974 (1974-05-07) figure 3 -----	24

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2007/063524

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTJNUED FROM PCTASA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-17, 23

Cryogenic transfer hose for hydrocarbons comprising an inner hose, an outer hose arranged around the inner hose in a concentric manner and a spacer member bridging an annular gap between the inner and outer hoses, a fibrous insulation material forming a three dimensional matrix of fibres being comprised in the annular gap, characterised in that the outer hose comprises an elastomeric and/or a plastic material, the fibrous material being contiguous overall best a part of the length of the hoses with the inner and outer hose and forming a spacer member.
Manufacturing method for such a pipe.

2. claims: 18-22

Fibrous insulating spacer material comprising at least one airtight film and a fibrous layer attached to said film.

3. claim: 24

Method of constructing a transfer hose, comprising the steps of:

- providing a first and second hose segment each having an inner and outer hose, compressed fibrous or porous material between the inner and outer hoses and a connecting flange at an end part,
- interconnecting the connecting flanges of the first and second segments and - increasing the air pressure of the fibrous or porous material in the first and second segments after interconnection..

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/EP2007/063524
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 4581804	A	15-04-1986	NONE
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US 3809128	A	07-05-1974	NONE